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EXAMINER

BRAY, STEPHEN A

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2629

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/550,871	Applicant(s) WAKABAYASHI ET AL.	
	Examiner STEPHEN A. BRAY	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 25-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22, 25-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :9/27/2005; 10/26/2005; 12/27/2005; 6/23/2006; 9/15/2008; 4/7/2009.

Claim Objections

1. Claim 25 objected to because of the following informalities: The underlined text in the phrase "...according to any one of Claim 39," located in line 1 of claim 25 should be deleted so that the phrase reads "...according to Claim 39,". Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 8-12, 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shenderova et al (US 2004/0111132) in view of Skene et al (US 2003/0069616).

Regarding claim 1, *Shenderova et al* discloses a display device for displaying an image by using light of a light emitter (Figures 7-8 disclose displaying pixilated images on a thin film electroluminescent (TFEL) panel.), wherein:

an intensity of the light having the wavelength which affects the biorhythm is increased or decreased at a higher rate than an intensity of light having another wavelength (Figures 7-8 and Paragraphs [0094] – [0097] of *Shenderova et al* disclose that the light emitted can have different wavelengths dependent upon which of the two or more pixel types is being activated. If the wavelength desired by the user is provided only by one of the pixel types, then only that pixel type will be turned on by the user and the other pixel type will be left off by the user. Therefore the intensity of the light generated by the pixel type providing the desired wavelength will increase and decrease at a higher rate than the other pixel type because the other pixel type is turned off.).

Shenderova et al fails to teach the light emitter emits light having such a wavelength that affects a biorhythm.

Skene et al discloses the light emitter emits light having such a wavelength that affects a biorhythm (Paragraphs [0003] and [0032] and claims 13-14 disclose having a light emitter emit light at a wavelength that affects the production of melatonin in the human subject, thus affecting the biorhythm of the human subject.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the display device taught by *Shenderova et al* with the teachings of *Skene et al* in order to form a display device which can be used to

Art Unit: 2629

treat various diseases, including biological rhythm imbalances, using emitted light waves.

Regarding claim 2, *Shenderova et al* as modified above discloses the display device according to claim 1, wherein the intensity of the light having the wavelength is controlled based on time information (Paragraph [0101] of *Shenderova et al* discloses that light intensity is controlled based on the desired light dosage for the human subject and the amount of time the light is to be emitted for. For example, the light can operate at an intensity of 10 mW/cm² for .0833 minutes or at an intensity of 0.1 mW/cm² for 8.33 minutes.).

Regarding claim 3, *Shenderova et al* as modified above discloses the display device according to claim 1, wherein the intensity of the light having the wavelength is controlled based on user instruction information set by a user (Paragraph [0086] of *Shenderova et al* discloses setting the intensity of the TFEL panel using a user interface 322 disclosed in Figure 3.).

Regarding claim 4, *Shenderova et al* as modified above discloses the display device according to claim 1.

wherein the intensity of the light having the wavelength is controlled based on contents information indicating what type of program the image is (Paragraph [0087] of *Shenderova et al* discloses that the intensity of light emitted by the TFEL panel is controlled based on the treatment protocol which is selected by the user. Figures 7-8 disclose the layout of different pixel patterns on the TFEL panel wherein the pixels that

Art Unit: 2629

are activated and the intensity that they emit light are controlled based on the treatment protocol selected by the user.).

Regarding claim 8, *Shenderova et al* as modified above discloses a display device comprising an image display section for displaying an image, the image display section including pixels each of which has a plurality of light emitters (Figures 7-8 and paragraph [0095] of *Shenderova et al* disclose displaying pixilated images on a thin film electroluminescent (TFEL) panel where the TFEL panel is composed of an array of pixels arranged in a prescribed pattern.), wherein:

the plurality of light emitters include a first light emitter for emitting light having such a wavelength that affects a biorhythm (Paragraphs [0003] and [0032] and Claims 13-14 of *Skene et al* disclose having a light emitter emit light at a wavelength that affects the production of melatonin in the human subject, thus affecting the biorhythm of the human subject.), and

a characteristic of a luminous intensity of the first light emitter with respect to a video signal inputted into the image display section is switched, so that an amount of light of the first light emitter is increased or decreased at a higher rate than another light emitter (Figures 7-8 and Paragraphs [0094] – [0097] of *Shenderova et al* disclose that the light emitted can have different wavelengths dependent upon which of the two or more pixel types is being activated. If the wavelength desired by the user is provided only by one of the pixel types, then only that pixel type will be turned on by the user and the other pixel type will be left off by the user. Therefore the intensity of the light

generated by the pixel type providing the desired wavelength will increase and decrease at a higher rate than the other pixel type because the other pixel type is turned off.).

Regarding claim 9, *Shenderova et al* as modified above discloses the display device according to claim 8, wherein the light having the wavelength which affects the biorhythm is light having a dominant wavelength of 445 nm to 480 nm (Claims 13-14 of *Skene et al* discloses the wavelength of light for suppressing melatonin production in a subject should have a wavelength of less than 480 nm, or more precisely, a wavelength between 452-454 nm.).

Regarding claim 10, *Shenderova et al* as modified above discloses the display device according to claim 9, wherein the characteristic of the luminous intensity of the first light emitter with respect to the video signal is switched based on time information (Paragraph [0101] of *Shenderova et al* discloses that light intensity is controlled based on the desired light dosage for the human subject and the amount of time the light is to be emitted for. For example, the light can operate at an intensity of 10 mW/cm² for .0833 minutes or at an intensity of 0.1 mW/cm² for 8.33 minutes.).

Regarding claim 11, *Shenderova et al* as modified above discloses the display device according to claim 9, wherein the characteristic of the luminous intensity of the first light emitter with respect to the video signal is switched based on user instruction information set by a user (Paragraph [0086] of *Shenderova et al* discloses setting the intensity of the TFEL panel using a user interface 322 disclosed in Figure 3.).

Regarding claim 12, *Shenderova et al* as modified above discloses the display device according to claim 9, wherein the characteristic of the luminous intensity of the

Art Unit: 2629

first light emitter with respect to the video signal is switched based on contents information indicating what type of program the image is (Paragraph [0087] of *Shenderova et al* discloses that the intensity of light emitted by the TFEL panel is controlled based on the treatment protocol which is selected by the user. Figures 7-8 disclose the layout of different pixel patterns on the TFEL panel wherein the pixels that are activated and the intensity that they emit light are controlled based on the treatment protocol selected by the user.).

Regarding claim 36, *Shenderova et al* as modified above discloses a display device for displaying an image by using light of a light emitter (Figures 7-8 and paragraph [0095] of *Shenderova et al* disclose displaying pixilated images on a thin film electroluminescent (TFEL) panel where the TFEL panel is composed of an array of pixels arranged in a prescribed pattern.), wherein:

the light emitter emits light having such a wavelength that affects a biorhythm (Paragraphs [0003] and [0032] and Claims 13-14 of *Skene et al* disclose having a light emitter emit light at a wavelength that affects the production of melatonin in the human subject, thus affecting the biorhythm of the human subject.), and

an intensity of the light having the wavelength is changed by selecting on a user's instruction a target control pattern from among a plurality of control patterns of controlling the intensity of the light having the wavelength, the plurality of control patterns corresponding to times (Paragraph [0087] of *Shenderova et al* discloses that the intensity of light emitted by the TFEL panel is controlled based on the treatment

protocol which is selected by the user. Figures 7-8 disclose the layout of different pixel patterns on the TFEL panel wherein the pixels that are activated and the intensity that they emit light are controlled based on the treatment protocol selected by the user.).

Regarding claim 37, *Shenderova et al* as modified above discloses the display device according to claim 36, wherein the plurality of control patterns are settable by the user (Paragraph [0086] of *Shenderova et al* discloses setting the intensity of the TFEL panel using a user interface 322 disclosed in Figure 3.).

Regarding claim 38, *Shenderova et al* as modified above discloses a method for using a display device which displays an image by using light of a light emitter (Figures 7-8 and paragraph [0095] of *Shenderova et al* disclose displaying pixilated images on a thin film electroluminescent (TFEL) panel where the TFEL panel is composed of an array of pixels arranged in a prescribed pattern.), wherein:

the light emitter emits light having such a wavelength that affects a biorhythm, and an intensity of the light having the wavelength is controlled, so that the biorhythm is regulated and the image is displayed (Paragraphs [0003] and [0032] and Claims 13-14 of *Skene et al* disclose having a light emitter emit light at a wavelength that affects the production of melatonin in the human subject, thus affecting the biorhythm of the human subject. Paragraph [0087] of *Shenderova et al* discloses that the intensity of light emitted by the TFEL panel is controlled based on the treatment protocol which is selected by the user. Figures 7-8 disclose the layout of different pixel patterns on the

Art Unit: 2629

TFEL panel wherein the pixels that are activated and the intensity that they emit light are controlled based on the treatment protocol selected by the user.).

5. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shenderova et al (US 2004/0111132) in view of Skene et al (US 2003/0069616) as applied to claims 1 and 9 above, and further in view of Kerr et al (US 7,236,154).

Regarding claim 5, *Shenderova et al* as modified above discloses the display device according to claim 1, wherein the intensity of the light having the wavelength is controlled based on ambient brightness.

Shenderova et al as modified above fails to teach wherein the intensity of the light having the wavelength is controlled based on ambient brightness.

Kerr et al discloses wherein the intensity of the light having the wavelength is controlled based on ambient brightness (The abstract discloses adjusting the brightness of a light source based on the measured level of light around the light source.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Shenderova et al* with the teachings of *Kerr et al* in order to form a display device in which power consumption of the display device can be reduced.

Regarding claim 13, *Shenderova et al* as modified above discloses the display device according to claim 9, wherein the characteristic of the luminous intensity of the first light emitter with respect to the video signal is switched based on ambient

Art Unit: 2629

brightness (The abstract of *Kerr et al* discloses adjusting the brightness of a light source based on the measured level of light around the light source.).

6. Claims 6-7, 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shenderova et al (US 2004/0111132) in view of Skene et al (US 2003/0069616) as applied to claim 1 and 9 above, and further in view of Stam et al (US 2002/0047624).

Regarding claim 6, *Shenderova et al* as modified above discloses the display device according to claim 1.

Shenderova et al as modified above fails to teach the display device comprising a complementary light emitter for emitting light whose color is substantially complementary to a color of the light having the wavelength.

Stam et al discloses the display device comprising a complementary light emitter for emitting light whose color is substantially complementary to a color of the light having the wavelength (Figure 7, Paragraph [0005], and Paragraph [0046] disclose that LED 701 emits a blue-green light at ~483 nm and LED 702 emits an amber light at ~584 nm wherein the combination of the amber light and the blue-green light can be used to create white light.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Shenderova et al* with the teachings of *Stam et al* in order to form a display device in which the light emitters can emit light having a color different than the color of the light supplied by each of the two light emitters.

Regarding claim 7, *Shenderova et al* as modified above discloses the display device according to claim 6, wherein a luminous intensity of the complementary light emitter is controlled in accordance with the intensity of the light having the wavelength (Figure 7 and Paragraphs [0005], [0046]-[0047] of *Stam et al* disclose adjusting the proportion of light emitted by LED 701 and LED 702, i.e. intensity, proportionately with respect to each other in order to generate output light of the desired color.).

Regarding claim 14, *Shenderova et al* as modified above discloses the display device according to claim 9, wherein the plurality of light emitters include a second light emitter for emitting red light and a third light emitter for emitting green light (Paragraph [0048] and Figure 9 of *Stam et al* discloses that the plurality of light emitters can include LED 901 for emitting red light at 630 nm, LED 902 for emitting green light at 520 nm, and LED 903 for emitting blue light at 450 nm.).

Regarding claim 15, *Shenderova et al* as modified above discloses the display device according to claim 9, wherein the plurality of light emitters include a complementary light emitter for emitting light whose color is substantially complementary to a color of light emitted by the first light emitter (Figure 7, Paragraph [0005], and Paragraph [0046] of *Stam et al* disclose that LED 701 emits a blue-green light at ~483 nm and LED 702 emits an amber light at ~584 nm wherein the combination of the amber light and the blue-green light can be used to create white light.).

Regarding claim 16, *Shenderova et al* as modified above discloses the display device according to claim 15, wherein a luminous intensity of the complementary light

Art Unit: 2629

emitter is controlled in accordance with the luminous intensity of the first light emitter (Figure 7 and Paragraphs [0005], [0046]-[0047] of *Stam et al* disclose adjusting the proportion of light emitted by LED 701 and LED 702, i.e. intensity, proportionately with respect to each other in order to generate output light of the desired color.).

Regarding claim 17, *Shenderova et al* as modified above discloses the display device according to claim 15, wherein the complementary light emitter is disposed next to the first light emitter (Figure 1 and 3A-3B of *Stam et al* disclose disposing the LEDs next to each other where the light that is emitted can be mixed to achieve the color desired by the user.).

Regarding claim 18, *Shenderova et al* as modified above discloses the display device according to claim 9, wherein at least one of the plurality of light emitters is a light-emitting diode (Paragraphs [0031] and [0047] – [0048] of *Stam et al* disclose that the light emitters are composed of light-emitting diodes (LEDs).).

Regarding claim 19, *Shenderova et al* as modified above discloses the display device according to claim 9, wherein at least one of the plurality of light emitters is an electroluminescent light emitter (Figures 7-8 and Paragraph [0095] of *Shenderova et al* disclose that the TFEL panel is composed of arrays of pixels arranged in prescribed patterns where the pixels are made of electroluminescent materials. Table 1 in Paragraph [0078] discloses that the wavelength of light emitted by a pixel is dependent upon the type of electroluminescent material used in the pixel.).

7. Claims 20, 31-33, 35, 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shenderova et al (US 2004/0111132) in view of Skene et al (US 2003/0069616) and Hecker (US 5,426,879).

Regarding claim 20, *Shenderova et al* discloses a display device emitter (Figures 7-8 disclose displaying pixilated images on a thin film electroluminescent (TFEL) panel.), wherein:

a luminous intensity of the first light emitter is switched so that an amount of light of the first light emitter is increased or decreased at a higher rate than another light emitter (Figures 7-8 and Paragraphs [0094] – [0097] of *Shenderova et al* disclose that the light emitted can have different wavelengths dependent upon which of the two or more pixel types is being activated. If the wavelength desired by the user is provided only by one of the pixel types, then only that pixel type will be turned on by the user and the other pixel type will be left off by the user. Therefore the intensity of the light generated by the pixel type providing the desired wavelength will increase and decrease at a higher rate than the other pixel type because the other pixel type is turned off.).

Shenderova et al fails to teach the light source includes a first light emitter for emitting light having such a wavelength that affects a biorhythm.

Skene et al discloses the light source includes a first light emitter for emitting light having such a wavelength that affects a biorhythm (Paragraphs [0003] and [0032] and claims 13-14 disclose having a light emitter emit light at a wavelength that affects the

Art Unit: 2629

production of melatonin in the human subject, thus affecting the biorhythm of the human subject.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the display device taught by *Shenderova et al* with the teachings of *Skene et al* in order to form a display device which can be used to treat various diseases, including biological rhythm imbalances, using emitted light waves.

Shenderova et al and *Skene et al* fail to teach a display device irradiating an image display section, which is for displaying an image, with light from a light source so as to cause the image display section to display the image.

Hecker teaches a display device irradiating an image display section, which is for displaying an image, with light from a light source so as to cause the image display section to display the image (Figure 1 discloses a simulated window unit which has a light from a light source shining thorough a transparency 32, which has an indicia imprinted thereon representing an outdoor view.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made that the modified display device taught by *Shenderova et al* could be substituted for the fluorescent lighting fixtures used in the window simulation unit of *Hecker* to form a window unit which would additionally act to reduce the production of Melatonin in an individual looking at the window unit.

Regarding claim 39, *Shenderova et al* as modified above discloses the display device according to claim 20, wherein the light having the wavelength which affects the biorhythm is light having a dominant wavelength of 445 nm to 480 nm (Claims 13-14 of *Skene et al* discloses the wavelength of light for suppressing melatonin production in a subject should have a wavelength of less than 480 nm, or more precisely, a wavelength between 452-454 nm.).

Regarding claim 31, *Shenderova et al* as modified above discloses the display device according to claim 39, wherein the luminous intensity of the first light emitter is controlled based on time information (Paragraph [0101] of *Shenderova et al* discloses that light intensity is controlled based on the desired light dosage for the human subject and the amount of time the light is to be emitted for. For example, the light can operate at an intensity of 10 mW/cm² for .0833 minutes or at an intensity of 0.1 mW/cm² for 8.33 minutes.).

Regarding claim 32, *Shenderova et al* as modified above discloses the display device according to claim 39, wherein the luminous intensity of the first light emitter is controlled based on user instruction information set by a user (Paragraph [0086] of *Shenderova et al* discloses setting the intensity of the TFEL panel using a user interface 322 disclosed in Figure 3.).

Regarding claim 33, *Shenderova et al* as modified above discloses the display device according to claim 39, wherein the luminous intensity of the first light emitter is controlled based on contents information indicating what type of program the image is (Paragraph [0087] of *Shenderova et al* discloses that the intensity of light emitted by the

Art Unit: 2629

TFEL panel is controlled based on the treatment protocol which is selected by the user. Figures 7-8 disclose the layout of different pixel patterns on the TFEL panel wherein the pixels that are activated and the intensity that they emit light are controlled based on the treatment protocol selected by the user.).

Regarding claim 35, *Shenderova et al* as modified above discloses a display device irradiating an image display section emitter (Figures 7-8 of *Shenderova et al* disclose displaying pixilated images on a thin film electroluminescent (TFEL) panel.), which is for displaying an image, with light from a light source so as to cause the image display section to display the image (Figure 1 of *Hecker* discloses a simulated window unit which has a light from a light source shining thorough a transparency 32, which has an indicia imprinted thereon representing an outdoor view.), the display device comprising:

a plurality of emission amount controlling means transmittances are different from each other in a wavelength band of 445 nm to 480 nm (Paragraphs [0003] and [0032] and claims 13-14 of *Skene et al* disclose having a light emitter emit light at a wavelength that affects the production of melatonin in the human subject, thus affecting the biorhythm of the human subject, wherein that wavelength of light is 452-454 nm.),

controlling of the plurality of emission amount controlling means causing an emission amount of the light from the light source to change for each wavelength band, so that the image display section is irradiated with the light (Figures 7-8 and Paragraphs [0094] – [0097] of *Shenderova et al* disclose that the light emitted can have different

Art Unit: 2629

wavelengths dependent upon which of the two or more pixel types is being activated. If the wavelength desired by the user is provided only by one of the pixel types, then only that pixel type will be turned on by the user and the other pixel type will be left off by the user. Therefore the intensity of the light generated by the pixel type providing the desired wavelength will increase and decrease at a higher rate than the other pixel type because the other pixel type is turned off.).

Regarding claim 40, *Shenderova et al* as modified above discloses a display device irradiating an image display section (Figures 7-8 of *Shenderova et al* disclose displaying pixilated images on a thin film electroluminescent (TFEL) panel.), which is for displaying an image, with light from a light source so as to cause the image display section to display the image (Figure 1 of *Hecker* discloses a simulated window unit which has a light from a light source shining thorough a transparency 32, which has an indicia imprinted thereon representing an outdoor view.), wherein:

the light source consists of white light emitter for emitting white light and a first light emitter for emitting light having such a wavelength that affects a biorhythm (Paragraph [0077] of *Shenderova et al* discloses that the pixels in the TFEL panel can be composed of multiple dopants. Figure 7 and Paragraph [0094] – [0095] discloses that the pixel pattern can be made up of alternating segments of doped electroluminescent materials. Paragraph [0005] of *Stan et al* discloses a white light can be produced by mixing the emissions of an amber LED and a blue-green LED.

Therefore it would have been obvious to one of ordinary skill in the art at the time that

Art Unit: 2629

the invention was made that part of the pixel pattern making up the TFEL panel could contain a plurality of dopants which operate to generate white light when those pixels are activated. The other part of the pixel pattern of the TFEL panel would be made up of the electroluminescent material that would generate light at a wavelength between 452 and 454 nm which acts to reduce melatonin production as taught by *Skene et al.*), and

a luminous intensity of the first light emitter is switchable independently of the white light emitter (Figures 7-8 and Paragraphs [0094] – [0097] of *Shenderova et al* disclose that the light emitted can have different wavelengths dependent upon which of the two or more pixel types is being activated. If the wavelength desired by the user is provided only by one of the pixel types, then only that pixel type will be turned on by the user and the other pixel type will be left off by the user. Therefore the intensity of the light generated by the pixel type providing the desired wavelength will increase and decrease at a higher rate than the other pixel type because the other pixel type is turned off.).

Regarding claim 41, *Shenderova et al* as modified above discloses the display device according to claim 40, wherein the light having the wavelength which affects the biorhythm is light having a dominant wavelength of 445 nm to 480 nm (Claims 13-14 of *Skene et al* discloses the wavelength of light for suppressing melatonin production in a subject should have a wavelength of less than 480 nm, or more precisely, a wavelength between 452-454 nm.).

8. Claims 21-22, 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shenderova et al (US 2004/0111132) in view of Skene et al (US 2003/0069616) and Hecker (US 5,426,879) as applied to claim 39 above, and further in view of Stam et al (US 2002/0047624).

Regarding claim 21, *Shenderova et al* as modified above discloses the display device according to claim 39, wherein the light source includes a second light emitter for emitting red light and a third light emitter for emitting green light (Paragraph [0048] and Figure 9 of *Stam et al* discloses that the plurality of light emitters can include LED 901 for emitting red light at 630 nm, LED 902 for emitting green light at 520 nm, and LED 903 for emitting blue light at 450 nm.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Shenderova et al* with the teachings of *Stam et al* in order to form a display device in which the light emitters can emit light having a color different than the color of the light supplied by each of the two light emitters.

Regarding claim 22, *Shenderova et al* as modified above discloses the display device according to claim 39, wherein the light source includes a white light emitter for emitting white light (Paragraph [0077] of *Shenderova et al* discloses that the pixels in the TFEL panel can be composed of multiple dopants. Figure 7 and Paragraph [0094] – [0095] discloses that the pixel pattern can be made up of alternating segments of doped electroluminescent materials. Paragraph [0005] of *Stan et al* discloses a white light can

be produced by mixing the emissions of an amber LED and a blue-green LED.

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made that part of the pixel pattern making up the TFEL panel could contain a plurality of dopants which operate to generate white light when those pixels are activated.).

Regarding claim 25, *Shenderova et al* as modified above discloses the display device according to any one of claim 39, comprising a complementary light emitter for emitting light whose color is complementary to a color of light emitted by the first light emitter (Figure 7, Paragraph [0005], and Paragraph [0046] of *Stam et al* disclose that LED 701 emits a blue-green light at ~483 nm and LED 702 emits an amber light at ~584 nm wherein the combination of the amber light and the blue-green light can be used to create white light.).

Regarding claim 26, *Shenderova et al* as modified above discloses the display device according to claim 25, wherein a luminous intensity of the complementary light emitter is controlled in accordance with the luminous intensity of the first light emitter (Figure 7 and Paragraphs [0005], [0046]-[0047] of *Stam et al* disclose adjusting the proportion of light emitted by LED 701 and LED 702, i.e. intensity, proportionately with respect to each other in order to generate output light of the desired color.).

Regarding claim 27, *Shenderova et al* as modified above discloses the display device according to claim 25, wherein the complementary light emitter is disposed next to the first light emitter (Figure 1 and 3A-3B of *Stam et al* disclose disposing the LEDs

Art Unit: 2629

next to each other where the light that is emitted can be mixed to achieve the color desired by the user.).

Regarding claim 28, *Shenderova et al* as modified above discloses the display device according to claim 39, comprising a phosphor for emitting light whose color is substantially complementary to a color of light emitted by the first light emitter (Figure 7, Paragraph [0005], and Paragraph [0046] of *Stam et al* disclose that LED 701 emits a blue-green light at ~483 nm and LED 702 emits an amber light at ~584 nm wherein the combination of the amber light and the blue-green light can be used to create white light.).

Regarding claim 29, *Shenderova et al* as modified above discloses the display device according to claim 39, wherein at least one of the light emitters of the light source is a light-emitting diode (Paragraphs [0031] and [0047] – [0048] of *Stam et al* disclose that the light emitters are composed of light-emitting diodes (LEDs).).

Regarding claim 30, *Shenderova et al* as modified above discloses the display device according to claim 39, wherein at least one of the light emitters of the light source is an electroluminescent light emitter (Figures 7-8 and Paragraph [0095] of *Shenderova et al* disclose that the TFEL panel is composed of arrays of pixels arranged in prescribed patterns where the pixels are made of electroluminescent materials. Table 1 in Paragraph [0078] discloses that the wavelength of light emitted by a pixel is dependent upon the type of electroluminescent material used in the pixel.).

Art Unit: 2629

9. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shenderova et al (US 2004/0111132) in view of Skene et al (US 2003/0069616) and Hecker (US 5,426,879) as applied to claim 39 above, and further in view of Kerr et al (US 7,236,154).

Regarding claim 34, *Shenderova et al* as modified above discloses the display device according to claim 39, wherein the luminous intensity of the first light emitter is controlled based on ambient brightness (The abstract of *Kerr et al* discloses adjusting the brightness of a light source based on the measured level of light around the light source.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Shenderova et al* with the teachings of *Kerr et al* in order to form a display device in which power consumption of the display device can be reduced.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN A. BRAY whose telephone number is (571)270-7124. The examiner can normally be reached on Monday - Friday, 9:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AMR AWAD can be reached on (571)272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2629

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/STEPHEN A BRAY/
Examiner, Art Unit 2629

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22 October 2009